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EXAMINER

NATIVIDAD, PHILIP SANA

ART UNIT

PAPER NUMBER

2877

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Please find below and/or attached an Office communication concerning this application or proceeding.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. ('575). Sugiyama discloses (Fig. 2A, 1A) directing light substantially perpendicular to a substrate and analyzing film thickness by the intensity of reflected light.

As to claims 2 and 3, an optical fiber to/from substrate, and branching to a plurality of sites on the substrate, and an optical shutter to select between branches, are all notoriously well known in the art, of which Official Notice is taken. It would have been obvious to one of ordinary skill in the art to combine these with the given thickness-measuring at a location, for motivation of more flexibly/completely/rapidly measuring/mapping/characterizing the substrate, at multiple locations.

8. Claims 4-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. Sugiyama discloses applicant's invention as recited in claims 1 and 19 above; further as to claims 4, 7, 10, and 20, Sugiyama discloses spectroscopy dividing light according to wavelength (col. 1 lines 55-57) and measuring intensity to calculate thickness (lines 58-61). As to claims 5, 8, 11 and 6, 9, 14, note that equations for calculating film thickness, given known wavelengths and known refractive indices (hence known reflectivities), are known in the art: applicant's recited equations are functionally equivalent derivations (n.b. different notation and

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k=1 discounting absorption factor) of Sugiyama's similar equations col. 6 lines 12 and 39; further analogous derivations for the case of multi-layer (as to claims 6, 9, 14), rather than single-layer thin films, are obvious within this art, for motivation of analogously characterizing well-known multilayer thin films in the same manner. As to claims 12, 15, and 17, robot or automated means for handling substrates are notoriously well known in the art, for motivation of rapid and repeatable throughput. As to claims 13, 16, and 18, it is notoriously well known to use optical film thickness-measuring in-line within a film growth apparatus for motivation of more rapid feedback during the process, of which Official Notice is taken.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner can be directed to Phil Natividad whose telephone number is 703-306-5944. The examiner can normally be reached on Tuesday through Friday and alternating Mondays; and supervising patent examiner Frank G. Font can be reached at 703-308-4881.

In view of delays in mail delivery in recent days, we at the USPTO would like to encourage you to communicate with the USPTO via facsimile. Facsimile transmissions may be used for correspondence as set forth in 37 CFR 1.6 such as: amendments, petitions for extension of time, authorization to charge a deposit account, an IDS, terminal disclaimers, a notice of appeal, an appeal brief, CPAs under 37 CFR 1.53(d), and RCEs.

PTO Form 2038 should be used when authorizing payment by credit card; this form is maintained separate from the file to ensure confidentiality.

The USPTO has recently installed server software that enables us to automatically receive facsimile transmissions and route them to the appropriate groups. No special equipment is needed by our customers to use this system other than a regular facsimile machine. Each Technology Center has its own facsimile numbers associated with our server for Official replies to non-final Office actions and for Official replies to final Office actions. In addition, each Technology Center has a Customer Service Center on our server system, and can answer any general application status questions you might have, can provide Examiner information, and answer paper queries.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 or 703-308-7722 for regular communications and 703-872-9319 or 703-308-7722 for After Final communications.